

DIVERSITY AND EXPLOITATION STATUS OF CRUSTACEAN FISHERY RESOURCES IN INDIA

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Introduction

India is blessed with long coastline of about 8118 km along the West Bengal, Odisha, Andhra Pradesh, Tamil Nadu and Pondicherry along the east coast; along Gujarat, Maharashtra, Goa, Karnataka, Kerala along the west coast. India has 2.02 million sq.km exclusive economic zone area and 0.53 million sq.km continental shelf area, a potential source for marine fisheries. The rich continental shelf area, a good habitat for demmersal fishes as well as crustaceans such as penaeid prawns, non-penaeid prawns, crabs, lobsters and stomatopods. Mechanised trawler is the main gear operated in the continental area targeting crustacean resources. Though trawl net is operated for penaeid prawn, non penaeid prawns, crabs and stomatopods will be formed as by catch because all these resources habituate in the same fishing ground.

Crustacean resources

Crustacean resources comprises with penaeid prawns, non-penaeid prawns, crabs, lobsters and stomatopods. Total annual marine fish landings of India ranged from 2.29 to 3.93 million t with mean at 2.92 million t. Annual total crustacean resources ranged from 3.52 lakh t to 5.32 lakh t with mean at 4.45 lakh t, and its contribution to total marine fish landings ranged from 12.6 % to 18.9 % with mean at 15.2 %. The landings of penaeid prawns ranged from 1.71 lakh t to 2.67 lakh t with mean at 2.07 lakh t. Landings of non-penaeids ranged from 1.04 lakh t to 2.13 lakh t with mean at 1.54 lakh t. The catches for lobsters ranged from 1,201 t to 2,787 t with mean at 1,860 t. Crab landings ranged from 27,538 t to 55,695 t with mean at 42,675 t. Stomatopod catches varied from 21,187 t to 92,611 t with mean at 39,433 t.



On an average penaeid prawns contributed 7.1%, non-penaeid prawns 5.3 %, crabs 1.5%, stomatopods 1.3 % and lobsters 0.1 % (Fig.1).

Trends in crustacean resource landings, group wise, are shown in fig.2. Increasing trend was observed in total crustacean resources during the 19 years period. Both penaeids and non –penaeids have shown increasing trends. A marginal increasing trend was observed in crab landings. Though lobster catches have shown decreasing trend, its contribution to total crustacean resources was very less (0.1%). Despite increasing trends exhibited by penaeids, non penaeids, crabs, stomatopods have shown decreasing trend because of competing in the same fishing ground with penaeids.

East Coast

Mean state-wise contribution (%) of crustacean resources to total crustacean landings of India for the period 1996-2014 along the east coast and state-wise contribution (%) to the total crustacean resources of the east coast are shown in Fig. 3 & 4. The contribution of crustacean resources from the east coast is 27.0 % to total crustacean landings. Tamil Nadu contributed highest (8.3 %) followed by Andhra Pradesh (6.8 %), West Bengal (6.1%), Odisha (5.5%) and Pondicherry (0.3 %). Tamil Nadu contributed 30.9 % to the total crustacean resources of the east coast, followed by Andhra Pradesh (25.0%), West Bengal (22.7%), Odisha (20.4%) and Pondicherry (1.1%).

West Coast

State-wise contribution (%) to the total crustacean resources of the west coast and mean state-wise contribution (%) of crustacean resources to total crustacean landings of India for the period 1996-2014 along the west coast are shown in Fig. 5 and 6. West coast contributed 72.9 % of total crustacean resources of India. Gujarat contributed high (28.3 %) followed by Maharastra (23.9 %), Kerala (13.2 %), Karnataka (6.3 %) and Goa (1.3 %). Along the west coast Gujarat contributed high (38.9%), followed by Maharastra (33.7%), Kerala (18.1%), Karnataka (8.6%) and Goa (1.7%)

Commercially important species

Commercially important of penaeids, non penaeids, crabs, lobsters, state-wise, are shown in table 1.



Fig. 1. Mean contribution of crustacean resources, group wise, to total marine fish landings for the nineteen years period (1996-2014)

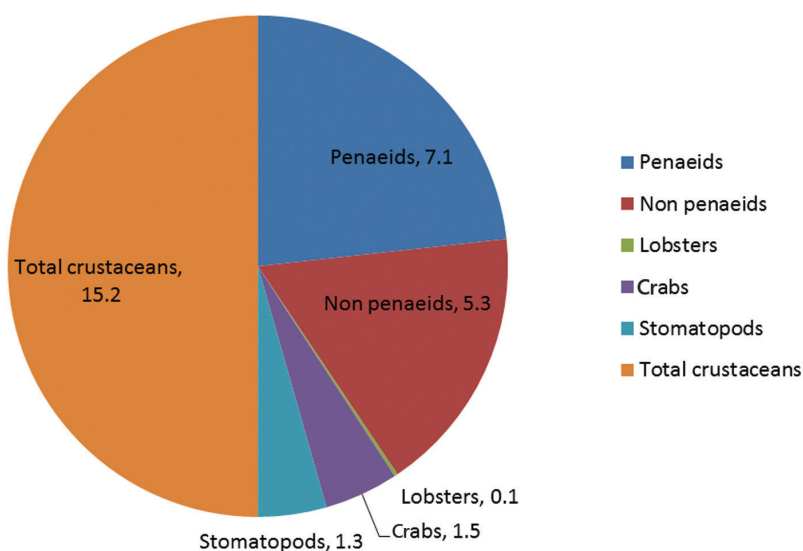


Fig.2. Group-wise, trends in crustacean resource landings during 1996-2014

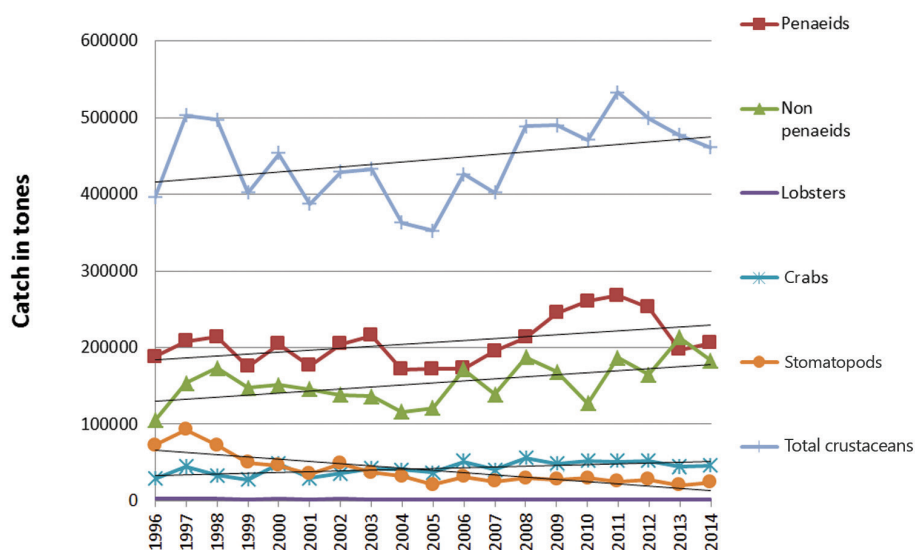




Fig. 3. Mean state-wise contribution (%) of crustacean resources to total crustacean landings of India for the period 1996-2014 along the east coast

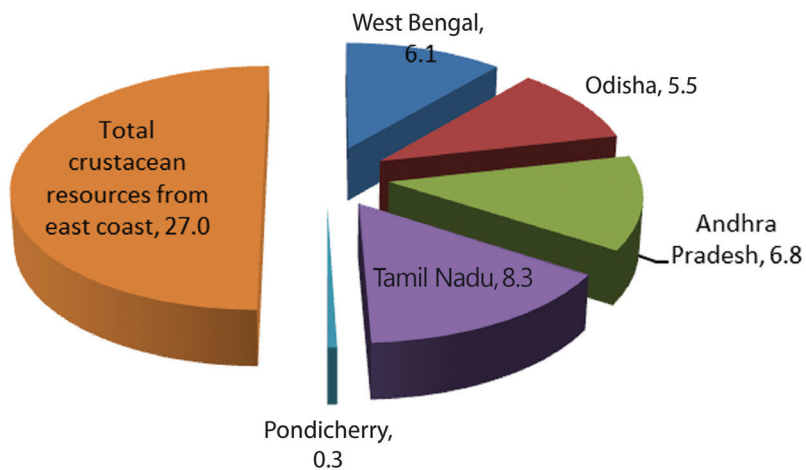


Fig.4. State-wise contribution (%) to the total crustacean resources of the east coast

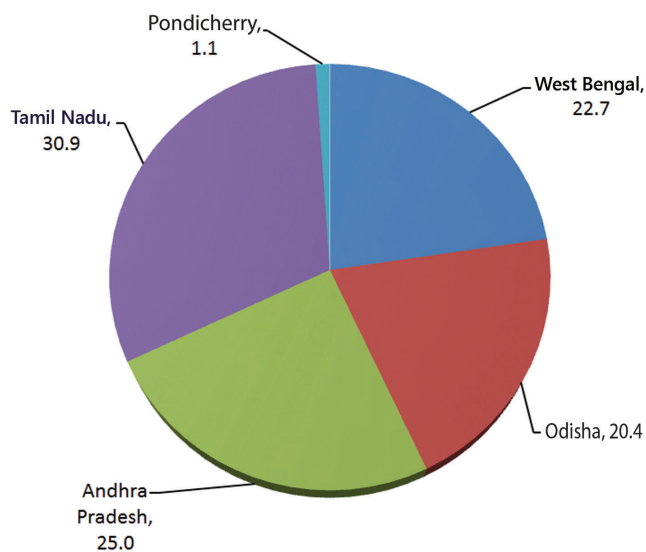




Fig.5. State-wise contribution (%) to the total crustacean resources of the west coast

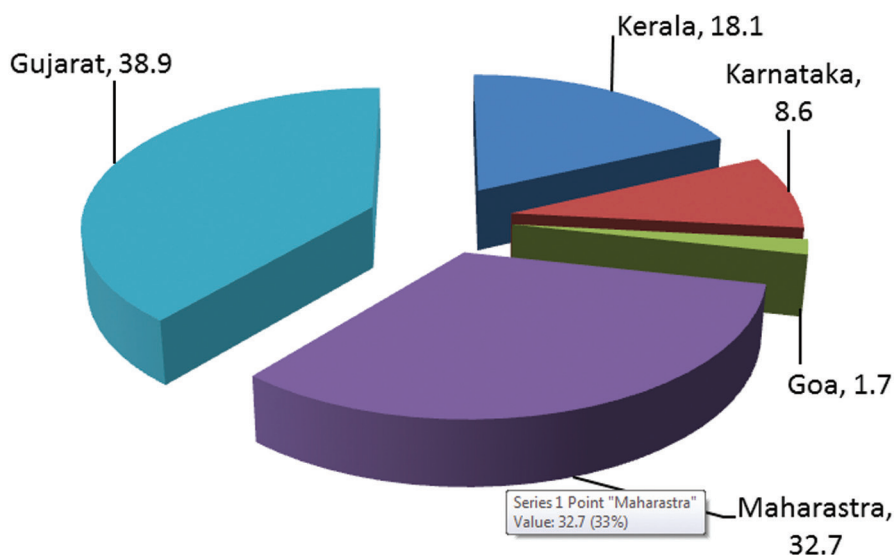


Fig.6. Mean state-wise contribution (%) of crustacean resources to total crustacean landings of India for the period 1996-2014 along the west coast

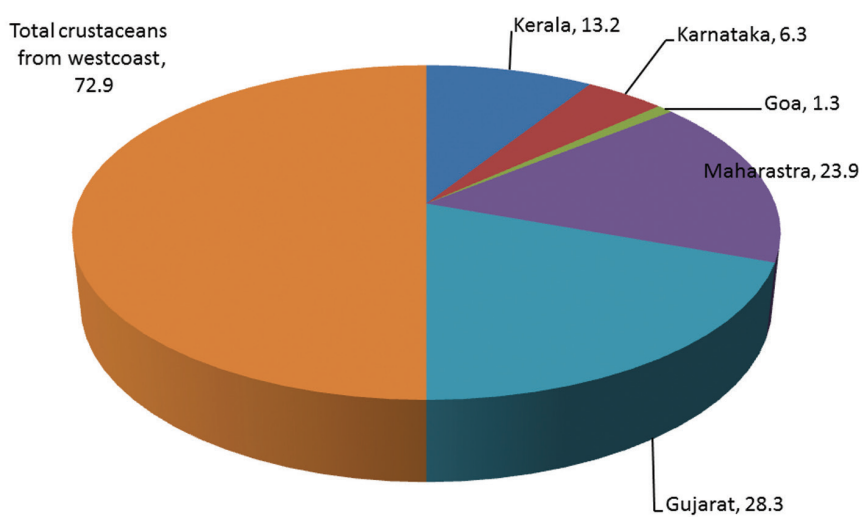




Table 1. Commercially important species of penaeids, non-penaeids, crabs, lobsters and stomatopods

State	Penaeids	Non-penaeids	Crabs	Lobsters
Gujarat	1. <i>Penaeus semisulcatus</i> 2. <i>Fenneropenaeus merguensis</i> 3. <i>Metapenaeus affinis</i> 4. <i>M. monoceros</i> 5. <i>M. kutchensis</i> 6. <i>Parapenaeopsis styliifera</i> 7. <i>P. hardwickii</i> 8. <i>P. sculptilis</i> 9. <i>Metapenaeopsis stridulans</i> 10. <i>Solenocera crassicornis</i>	1. <i>Acetes</i> spp. 2. <i>N. tenuipes</i> 3. <i>E. ensirostris</i>	1. <i>Portunus sanguinolentus</i> 2. <i>C. feriatus</i>	1. <i>P. polyphagus</i>
Maharashtra	1. <i>Fenneropenaeus indicus</i> 2. <i>Metapenaeus affinis</i> 3. <i>M.monoceros</i> 4. <i>M. dobsoni</i> 5. <i>Parapenaeopsis styliifera</i> 7. <i>Solenocera crassicornis</i> 8. <i>S. choprai</i>	1. <i>Acetes</i> spp. 2. <i>N. tenuipes</i> 3. <i>Exhippolysmata ensirostris</i>	1. <i>C. feriatus</i> 2. <i>P. sanguinolentus</i> 3. <i>P. pelagicus</i>	1. <i>P. polyphagus</i>
Karnataka	1. <i>Fenneropenaeus indicus</i> 2. <i>Penaeus monodon</i> 3. <i>P. canaliculatus</i> 1. <i>M. dobsoni</i> 2. <i>M. monoceros</i> 3. <i>M. affinis</i> 4. <i>P. styliifera</i> 5. <i>S. choprai</i>		1. <i>C. feriatus</i> 2. <i>P. sanguinolentus</i> 3. <i>P. pelagicus</i>	



State	Penaeids	Non-penaeids	Crabs	Lobsters
Kerala	1. <i>M. monoceros</i> 2. <i>M. affinis</i> 3. <i>M. dobsoni</i> 4. <i>F. indicus</i> 5. <i>P. stylifera</i> 6. <i>S. choprai</i> 7. <i>Metapenaeopsis andamanensis</i> 8. <i>Aristeus alcocki</i>	1. <i>Plesionika spinipes</i> 2. <i>Heterocarpus gibbosus</i> 3. <i>H. woodmasoni</i>	1. <i>P. pelagicus</i> 2. <i>P. sanguinolentus</i> 3. <i>C. feriatius</i> 4. <i>C. lucifera</i> 5. <i>Podophthalmus vigil</i> 6. <i>Scylla serrata</i>	1. <i>Thenus unimaculatus</i> 2. <i>P. homarus</i>
Tamil Nadu	1. <i>Penaeus semisulcatus</i> 2. <i>Fenneropenaeus indicus</i> 3. <i>P. latisulcatus</i> 4. <i>Metapenaeus dobsoni</i> 5. <i>M. moyebi</i> 6. <i>Parapenaeopsis maxillipedo</i> 7. <i>P. uncta</i> 8. <i>Metapenaeopsis stridulans</i> 9. <i>Solenocera hextii</i> 10. <i>Aristeus alcocki</i> 11. <i>Parapenaeus fissuroides</i> 12. <i>Parapenaeus investigatoris</i> 13. <i>Penaeopsis jerry</i> 14. <i>M. andamanensis</i> 15. <i>Solenocera alphonso</i>	1. <i>Plesionika spinipes</i> 2. <i>Heterocarpus gibbosus</i> 3. <i>H. woodmasoni</i>	1. <i>P. pelagicus</i> 2. <i>P. sanguinolentus</i> 3. <i>C. feriatius</i> 4. <i>C. natator</i> 5. <i>C. smithii</i> 6. <i>C. annulata</i> 7. <i>C. lucifera</i> 8. <i>C. hellerii</i> 9. <i>Podophthalmus vigil</i> 10. <i>P. gladiator</i> 11. <i>P. haanii</i>	1. <i>P. homarus</i> 2. <i>P. ornatus</i> 3. <i>P. polyphagus</i> 4. <i>P. versicolor</i> 5. <i>P. ornatus</i> 6. <i>P. penicillatus</i> 7. <i>Thenus unimaculatus</i>



State	Penaeids	Non-penaeids	Crabs	Lobsters
Andhra Pradesh	1. <i>Metapenaeus monoceros</i>	1. <i>Acetes</i> spp.	1. <i>P. pelagicus</i>	1. <i>Thenus unimaculatus</i>
	2. <i>M. dobsoni</i>	2. <i>N. tenuipes</i>	2. <i>P. sanguinolentus</i>	
	3. <i>M. brevicornis</i>	3. <i>E. ensirostris</i>	3. <i>C. feriatus</i>	
	4. <i>M. affinis</i>		4. <i>Scylla serrata</i>	
	5. <i>M. lysianassa</i>		5. <i>S. olivacea</i>	
	6. <i>F. indicus</i>			
	7. <i>P. monodon</i>			
	8. <i>F. merguiensis</i>			
	9. <i>P. japonicus</i>			
	10. <i>P. semisulcatus</i>			
	11. <i>Metapeaeopsis stridulans</i>			
	12. <i>M. barbata</i>			
	13. <i>M. mogiensis</i>			
	14. <i>Solenocera crassicornis</i>			
	15. <i>S. melantho</i>			
	16. <i>Parapenaeopsis styliifera</i>			
	17. <i>P. hardwickii</i>			
	18. <i>P. uncta</i>			
	19. <i>P. maxillipedo</i>			
	20. <i>P. coromondelica</i>			
	21. <i>Trachypenaeus curvirostris</i>			
	22. <i>T.granulosus</i>			
	23. <i>T.sedili</i>			
	24. <i>Parapenaeus longipes</i>			



State	Penaeids	Non-penaeids	Crabs	Lobsters
Odisha	1. <i>Metapenaeus dobsoni</i> 2. <i>M. monoceros</i> 3. <i>M. affinis</i> 4. <i>F. merguiensis</i> 5. <i>P. monodon</i> 6. <i>F. indicus</i> 7. <i>P. styliфера</i> 8. <i>P. hardwicki</i> 9. <i>M. lysianasa</i> 10. <i>Solenocera</i> spp. 11. <i>M. burkenroadi</i>		1. <i>P. pelagicus</i> 2. <i>P. sanguinolentus</i> 3. <i>C. feriatius</i> 4. <i>Scylla serrata</i> 5. <i>S. olivacea</i>	
West Bengal	1. <i>Metapenaeus dobsoni</i> 2. <i>M. monoceros</i> 3. <i>M. affinis</i> 4. <i>M. lysianasa</i> 5. <i>F. penicillatus</i> 6. <i>F. merguiensis</i> 7. <i>P. monodon</i> 8. <i>P. styliфера</i> 9. <i>P. hardwicki</i> 10. <i>Solenocera</i> spp. 11. <i>M. burkenroadi</i>			

